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Health, stress, and well-being in Swiss adult survivors of child welfare practices and child labor: Investigating the mediating role of socio-economic factors

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Abstract: BACKGROUND: With widespread deprivation in the education of minors affected by child welfare practices (CWP) in the last century, affected individuals often continued a life dominated by socio-economic disadvantage. According to life course theories, the impact of socio-economic disadvantage can accumulate across the life span, leading to worse health in later life. However, the scientific examination of health correlates of CWP in later life and the mediating role of socio-economic factors (SEF) has previously been neglected. OBJECTIVE: This study examined whether Swiss survivors of CWP, including former Verdingkinder, have poorer health in later life compared to controls, and whether this association is mediated by socio-economic factors: education, income, satisfaction with financial situation, socio-economic status. PARTICIPANTS AND SETTING: Two face-to-face interviews were conducted with N = 257 participants (risk group, RG, n = 132, M_{AGE} = 70.83 years, 58 % male; control group, CG, n = 125, M_{AGE} = 70.6 years, 49 % male). METHODS: A broad set of physical health outcomes, stress, well-being, and SEF were assessed with psychometric instruments. RESULTS: The RG reported more physical illnesses, vascular risk factors, health symptoms, stress, and lower well-being, compared to the CG. Mediation analyses revealed that SEF were relevant mediators for the significant health and stress disparities between groups. CONCLUSIONS: Results suggest that SEF can play a crucial role in mitigating the negative effects and health impairments in individuals formerly affected by CWP. Public health services and policies that target these SEF could improve current welfare practices by providing opportunities to overcome early-life disadvantage and facilitating healthier life trajectories.

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Health, stress, and well-being in Swiss adult survivors of child welfare practices and child labor: Investigating the mediating role of socio-economic factors

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ABSTRACT

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Objective: This study examined whether Swiss survivors of CWP, including former *Verdingkinder,* have poorer health in later life compared to controls, and whether this association is mediated by socio-economic factors: education, income, satisfaction with financial situation, socio-economic status.
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Methods: A broad set of physical health outcomes, stress, well-being, and SEF were assessed with psychometric instruments.
Results: The RG reported more physical illnesses, vascular risk factors, health symptoms, stress, and lower well-being, compared to the CG. Mediation analyses revealed that SEF were relevant mediators for the significant health and stress disparities between groups.
Conclusions: Results suggest that SEF can play a crucial role in mitigating the negative effects and health impairments in individuals formerly affected by CWP. Public health services and policies that target these SEF could improve current welfare practices by providing opportunities to overcome early-life disadvantage and facilitating healthier life trajectories.

1. Introduction

The basic intention of child welfare practices and protective services, such as foster care or residential childcare institutions, is to provide vulnerable children and adolescents with a safe environment. However, such substitutive care contexts also bear a risk for

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heightened exposure to psychosocial stress and maltreatment (e.g., Biehal, 2014; Sherr, Roberts, & Gandhi, 2017). This has particularly been the case in the last century, where, in addition to profoundly different social norms, moral and child care ideologies; the supervisory and inspective aspects of child welfare practices were often lacking, poorly organized, understaffed, or under-resourced (e.g., Biehal, 2014; Leuenberger & Seglias, 2008; Sigal, Perry, Rossignol, & Ouimet, 2003). As such, it is of no surprise that internationally, those affected by of child welfare practices report frequent and a broad range of hardships, neglect of physical and emotional needs, and (systematic) maltreatment (Carr, Duff, & Craddock, 2020).

1.1. Impact on mental health across the life span

A growing number of studies conducted with survivors of child welfare practices across the globe, reveal an increased prevalence for mental disorders and poor psychosocial adjustment (Carr et al., 2020). These detrimental correlates were found in the short-term, i.e., in childhood and adolescence (Gavrilovici & Groza, 2007; e.g., Pecora, Jensen, Romanelli, Jackson, & Ortiz, 2009; Salazar, Keller, & Courtney, 2011; Zeanah et al., 2009); as well as in the mid-term, i.e., in young, middle, and older adulthood (e.g., Carr et al., 2010, 2019; Knefel & Lueger-Schuster, 2013; Lueger-Schuster et al., 2014, 2018; Sigal, Rossignol, & Perry, 1999). Although comparatively little research exists on the (very) long-term correlates in older adulthood, the existing data highlights links between child welfare practices and detrimental psychological health six to seven decades later (e.g., Burri, Maercker, Krammer, & Simmen-Janevska, 2013; Kuhlman, Maercker, Bachem, Simmen, & Burri, 2013).

1.2. Impact on physical health

In comparison to mental health, noticeably less research exists on the relationship between child welfare practices and physical health outcomes. Nevertheless, some studies show meaningful associations between child welfare practices and poor physical health (in the form of frequent physical illnesses, medical conditions, and hospitalizations due to physical health issues) in formerly affected children and adolescents (Benedict, Zuravin, Somerfield, & Brandt, 1996); as well as in younger to older adults (Carr, 2009; Carr et al., 2019; Kuhlman et al., 2013; Sigal et al., 1999, 2003). In a systematic review of the long-term consequences of welfare-related child abuse, Carr et al. (2020) summarized that an average of 30 % of survivors reported frequent physical illnesses, with a range of between 6 % and 74 % observed in the literature. Some studies also observed poor health in survivors of child welfare practices as evidenced by a higher number of stress-related chronic illnesses, including chronic bronchitis or asthma, hay fever, serious back problems, joint pain, frequent headaches, migraine, as well as skin and respiratory problems (Sigal et al., 1999, 2003). Thus, although comparatively scarce, the existing data on physical health outcomes suggests that survivors of child welfare practices may have an elevated risk for poor physical health across the life span. However, as with studies on mental health, the investigation of the long-term correlates of child welfare practices with physical health in older adulthood is largely unexplored. As many survivors of the child welfare practices of the last century are now reaching older age phases, it is of increasing urgency and importance to investigate and document these long-term health-related correlates.

1.3. Socio-economic factors and health

In investigating this association between child welfare practices and poor health in later life, life course perspectives, concepts, and theories may play an important role. For instance, the *cumulative advantage/disadvantage theory* (Dannefer, 2003), the *cumulative inequality theory* (Ferraro & Shippee, 2009), or the concept of *stress proliferation* (Pearlin, Schieman, Fazio, & Meersman, 2005) can help explain how early-life stress, interindividual differences, disadvantage and inequality can accumulate over the life course, leading to worse health outcomes in later life. The basic idea underpinning these concepts and theories is "…explicitly or implicitly, that disadvantage leads to further disadvantage" (Schafer, Shippee, & Ferraro, 2009, p. 13). As disadvantage and inequality are considered to be largely created by social systems (Ferraro & Shippee, 2009), socio-economic factors, such as education, income, and socio-economic status (SES), are of core interest in these research domains (e.g. Mirowsky & Ross, 2005; Pearlin et al., 2005). In the life course perspective, such disadvantage and inequality, for example, low educational attainment or SES, can act as chronic stressors, which attract and increase the risk for additional stressors over time (Ferraro & Shippee, 2009; Mirowsky & Ross, 2005; Pearlin et al., 2005). The continuous build-up of psychobiological strain, i.e., allostatic load (McEwen, 2004), caused by such stressors can then potentially lead to poor health in older adulthood. Previous research on these socio-economic factors, such as a low level of education or disadvantaged SES, have shown connections with increased mortality and morbidity across the life span (Chen & Miller, 2013; Kulhanova, Hoffmann, Eikemo, Menvielle, & Mackenbach, 2014).

1.4. Relevance of topic

This potential for accumulation and proliferation of disadvantage-related stressors is particularly important for survivors of child welfare practices for several reasons. First, these individuals were often treated as social outcasts or regarded as "nonpersons" (Sigal et al., 2003, p. 5). As such, their life course began with a high amount of social disadvantage. Second, minors in child welfare practices were seldomly given opportunities for proper scholarly or vocational education and were often deprived of elementary knowledge or basic life skills, leaving them underprepared for life outside the child welfare system (Leuenberger & Seglias, 2008; Stein, 2006). Third, child maltreatment (commonly reported by survivors of child welfare practices) is known to negatively affect academic performance (Romano, Babchishin, Marquis, & Frechette, 2015). This can have lasting impacts into later

adulthood, such as sub-ordinate occupational positions and continued socio-economic disadvantage (e.g., Kuhlman et al., 2013; Lueger-Schuster et al., 2018; Sigal et al., 2003). Taken together, this research suggests that for survivors of child welfare practices, socio-economic disadvantage may have a cumulative negative influence on their health across the life span. Consistent with this, a recent systematic review (Carr et al., 2020) on adult adjustment in survivors of child maltreatment in long-term care, found that the most commonly reported psychosocial adjustment issues were related to socio-economic factors. This included education-related problems (59 %, e.g., issues in school, leaving school prematurely), and poverty (56 %, e.g., not having a job, un-skilled/semi-skilled occupations). The importance of socio-economic factors for the psychosocial adjustment of survivors of child welfare practices, combined with their role in translating disadvantage and inequality into poor health across the lifespan (Dannefer, 2003; Pearlin et al., 2005); suggest that socio-economic factors may be crucial for understanding the health disparities in later life between survivors of child welfare practices and non-affected individuals.

1.5. Aim of the present study

It is therefore the aim of this study to assess the (very) long-term correlates of physical health, stress, and subjective well-being in older adults who were affected by child welfare practices in the last century up until 1981 in Switzerland, including individuals formerly affected by child labor, the so-called Swiss *Verdingkinder*. In contrast to previous research, this study also included an age-matched, control group (i.e., not affected by child welfare practices) to better frame the findings from the perspective of child welfare practices. Furthermore, this study aimed to examine whether expected health disparities between groups are mediated by the socio-economic factors: education, income class, satisfaction with financial situation, and SES.

2. Design and methods

2.1. Context

Data for this study were collected within the project "Differential aging trajectories in high-risk individuals with past experiences of early adversity". This project consists of a longitudinal study ('main study'), and two mixed-methods sub-studies. Data for the current study is derived from the baseline assessment of the 'main study', conducted between July and December 2019. The baseline assessment involved two face-to-face appointments of approximately 120 min and an extensive battery of standardized questionnaires, assessing mental and physical health, well-being, and experiences in childhood and adolescence. The study was conducted by the University of Zürich. The study protocol is in accordance with the Declaration of Helsinki and was approved by the Ethics Committee of the Faculty of Arts and Social Sciences in the University of Zürich (ID: 19.4.3).

2.2. Participants and recruitment

Inclusion criteria for all participants were a minimum age of 50 years and having Swiss German as native language. Two groups were recruited: a 'risk group' of individuals affected by compulsory social measures and placement (CSMP) as a child and/or adolescent for a minimum duration of one year, and a 'control group' of non-affected, age-matched individuals.

2.2.1. Risk group

In Switzerland, during the last century until 1981, it was possible to remove children and adolescents from their biological parents and place them into care with foster families, childcare facilities, children's homes, poor houses, or penal institutions (Federal Office of Justice, 2020). While these CSMP were practiced in the spirit of child welfare, i.e., to provide orphaned children and abused and neglected minors with a protective place to grow up, in many cases, these measures happened arbitrarily and were often consequences of perceived "violations" to Swiss social norms. Such violations included birth out of wedlock, broken homes, single-motherhood, substance abuse, gipsy origin, parental death, and extreme poverty (Leuenberger & Seglias, 2008). In many cases, as a particular type of child welfare, children and adolescents were placed with foster families living and working on a farm. Although foster families received money to take care of the minors, the children and adolescents still had to work hard for their living. Such children and adolescents became known as 'Verdingkinder' or 'child slaves' (Leuenberger & Seglias, 2008). This was possible in the last century, as child labor was still common and unregulated for farm work. In addition to the hard work and harsh living conditions, most Verdingkinder experienced high levels of traumatic childhood experiences (for example, see Kuhlman et al., 2013); and reports suggest that some Verdingkinder were even killed by their care takers (Leuenberger & Seglias, 2008). Verdingkinder belonged to the lowest social class, were stigmatized, socially isolated by their care takers, denied food or access to a proper education, and were often bullied by their peers. While exact numbers are unknown, it is estimated that tens of thousands of individuals were affected by such CSMP (Federal Office of Justice, 2020).

A large proportion of the risk group in this study were recruited via a list of contacts (an estimated $n = 4{,}000$ individuals), which was compiled and provided by the *Swiss Federal Office of Justice*. During the submission of their application for solidarity contribution, these individuals had expressed their willingness to be contacted for research purposes in relation to their experienced CSMP. These individuals were sent an information letter to inform them about the study aim, and procedure, including the contact information (phone number and email address) of the screening team. Other recruitment procedures for the risk group included directly contacting individuals who had previously come forward publicly with their biographies, as well as via word-of-mouth recommendations.

2.2.2. Control group

Control participants were recruited via flyers distributed at various public places and senior organizations (e.g., pharmacies, senior leisure clubs), newsletters, as well as via the sample pool of the affiliated University Research Priority Program *Dynamics of Healthy Ageing* of the University of Zürich.

2.3. Procedure

After indicating interest in the study via phone call or e-mail (using the contact information on the information letter or flyer), potential participants were provided with more detailed information about the aims and procedure of the study. In the case of continued interest, potential participants were screened by telephone for the study inclusion criteria. If all screening criteria were met, eligible participants were then assigned a study code and two face-to-face assessments (A1 and A2) were scheduled with one of the trained interviewers. Both A1 and A2 were performed within one week for each participant. Before A1, participants were sent an information package, which included the study description, an informed consent form, directions to the study site, and some questionnaires assessing basic demographic and health data. One day before A1, participants were contacted with a reminder and also to provide the opportunity to ask questions relating to study participation.

Upon arrival for A1, remaining questions were answered and informed consent was received from all participants. For the risk group, A1 then started with a short interview on CSMP-specific information (see measures section below). A structured clinical interview was then conducted to assess current and lifetime mental disorders (not reported here), which was the starting point for the control group. The interviewers, all psychology students, were specifically trained by an external specialist to conduct these clinical interviews. The project lead (MVT), a trained psychotherapist with years of practical experience, additionally trained the interviewers how to deal with potentially difficult situations (e.g., how to handle strong emotions in the interviews). The A1 lasted a maximum of 120 min and at the end participants were given a 'home package' consisting of a battery of standardized questionnaires that was completed at home and brought back at A2.

The A2 assessment focused on stressful life events and traumatic experiences across the life span, particularly in childhood and adolescence, as well as data on health and well-being, coping strategies and resilience resources, and some behavioral and cognitive tasks. The A2 lasted a maximum of 120 min and included some casual conversation at the end in order to leave the participants in stable and positive mental state. Participants were then provided with a list of contact points for crisis intervention or psychotherapy, in case study participation triggered psychological distress or interest in professional help. After completion of A1 and A2, participants were reimbursed with 240 Swiss Francs (approximately $250).

2.4. Measures

Standardized self-report questionnaires were used and printed in a larger font to allow for better readability in case of (age-related) diminished vision. If participants indicated reading difficulties (e.g., due to reading disabilities or poor hand writing following a stroke), the interviewer read out the questions and filled in the questionnaires for the participants.

2.4.1. Socio-demographic information

The following socio-demographic information was assessed: age, gender, living situation (e.g., cohabitation), relationship status, educational attainment, past and current employment status, income class, and subjective satisfaction with current financial situation.

2.4.2. Satisfaction with socio-economic status

Satisfaction with socio-economic status was assessed with the single-item *MacArthur Scale of Subjective Social Status* (Adler, Epel, Castellazzo, & Ickovics, 2000). This scale assesses perceived SES relative to others on a scale ("ladder") from 1 to 10. On top of the ladder (10) are people with the most money, highest education, and best jobs. On the lowest step of the ladder (1) are people with the least amount of money, lowest education, and poorest/no jobs. The higher the participants rated themselves on the ladder, the higher the perception of being close to the highest social-status Swiss people. The German version has been validated in a German sample that included older adults (Hoebel, Müters, Kuntz, Lange, & Lampert, 2015).

2.4.3. CSMP-related information

Drawing on existing literature and previous research with former Verdingkinder (e.g., Holtge, McGee, Maercker, & Thoma, 2018; Küffer, Thoma, & Maercker, 2016), a semi-structured interview was created by the authors to systematically assess basic data related to the experienced CSMP. This included the specific type of CSMP, age at first CSMP experience, as well as duration, reason, and contextual information of CSMP.

2.4.4. Physical health and mental health

Physical and mental health related information was assessed using the psychometric instruments listed below. In addition, waist-to-hip ratio and the current and lifetime smoking status was assessed.

2.4.4.1. Medical treatments and physical illnesses. To systematically assess medical treatments and physical illnesses, the general health section of the German structured clinical interview for diagnosing mental disorders (DIPS) was applied (Margraf, Cwik, Pflug, &

Schneider, 2017; Margraf, Cwik, Suppiger, & Schneider, 2017). Participants indicated whether they had a general practitioner providing them with medical treatments, were currently in treatment due to physical illness, were ever hospitalized or had an operation due to physical health issues, had an injury to the head/concussion, and were ever diagnosed with the following physical illnesses: diabetes, heart problems, high/low blood pressure, epilepsy, cancer, thyroid problems, other hormonal problems, asthma, other respiratory problems, migraine, stroke, gastrointestinal problems, blood diseases, HIV/AIDS, other illnesses (Margraf, Cwik, Pflug et al., 2017; Margraf, Cwik, Suppiger et al., 2017).

2.4.4.2. Health symptoms. The *Short-Form Health Survey Version 2* was used to assess different health dimensions (SF-36 V2; Bullinger, Kirchberger, & Ware, 1995; Morfeld, Bullinger, Nantke, & Brähler, 2005). The SF-36 consists of 36 items, eight sub-scales (physical functioning, physical role functioning, bodily pain, general health perceptions, emotional role functioning, social role functioning, psychological well-being, and vitality), and two component scores (physical component summary, PCS, and mental component summary, MCS). Items are rated on Likert scales of varying ranges, with overall higher values indicating better health. The German version has been validated in a representative German population, which included older adults (Morfeld et al., 2005).

2.4.4.3. Stress load. Current stress load and stress-related symptoms within the last three months were assessed with the stress load and stress-symptom scales of the German *Stress and Coping Inventory* (SCI; Satow, 2012). The three stress load scales are: 'stress due to uncertainty', 'stress due to overload', and 'stress due to loss and actual negative events', which combine to form a 'total stress' scale. These scales consist of a total of 21 items, rated on a seven-point Likert scale ranging from "no burden/excessive demand" to "very heavy burden/excessive demand". The scale on physical and mental stress consists of 13 items, rated on a four-point Likert scale ranging from "does not apply at all" to "fully applies". Higher values indicated higher burden/higher excessive demand/more physical and mental stress symptoms. The SCI has been validated for individuals aged 50 and older (Satow, 2012).

2.4.4.4. Well-being. The *Satisfaction with Life Scale* was used as a proxy indicator for subjective well-being (SWLS; Diener, Emmons, Larsen, & Griffin, 1985). The SWLS consists of five items, rated on a seven-point Likert scale, with higher scores indicative of higher life satisfaction. The German version of the SWLS has been validated in a German sample, which included individuals up to 91 years (Glaesmer, Grande, Braehler, & Roth, 2011).

2.5. Data analysis

Statistical analyses were performed using R version 3.6.2. Differences between the risk and control groups were analyzed using an unpaired *t*-test for continuous variables, and Chi-squared test for categorical variables. The proportion of missing data was 2.3 % overall and less than 8 % for each instrument. Missing data was imputed using the package "missRanger" which uses a chaining random forests algorithm to impute mixed-type data sets. This algorithm is beneficial for moderate to high missingness. To impute missing values, 100 trees were calculated while applying predictive mean matching.

First, group differences in health-related outcomes (i.e., physical health and subjective well-being) and stress levels between the risk and control groups were evaluated using ANCOVA for continuous outcomes and binary logistic regression for binary outcomes (i.e., physical illnesses). Age and gender were included as covariates and the factor group (risk and control group) as an independent variable. Multicollinearity analysis reported a VIF < 10 for all included variables. For the logistic regression analysis, the following pseudo R^2-values were calculated: Hosmer Lemeshow, Cox and Snell, and Nagelkerke. Partial eta squared indicated the effect size for the ANCOVA, whereby 0.01 was considered as small, 0.06 as medium, and 0.14 as large effect sizes (Cohen, 1988) and adjusted means were also computed. Shapiro-Wilk and Levene's tests indicated that normality and homogeneity of variance could not be assumed in all models ($p < .05$). To support the validity of the parametric tests, robust ANCOVA comparing trimmed means were also conducted.

Second, simple mediation analyses were performed to investigate whether significant group differences in physical and mental health-related information were mediated by socio-economic factors. The following mediators were evaluated, while controlling for age and gender: education, income class, satisfaction with financial situation, and satisfaction with SES. The mediation analysis was performed following the regression method recommended by Hayes (2017). To determine the significance of indirect effects, parameter estimation was conducted using a bootstrap sampling method, specifying 1000 iterations. Unstandardized estimates of β were calculated and the control group was set as the reference category.

3. Results

3.1. Sample characteristics

A total of 260 participants were recruited at A1. Three participants in the risk group dropped out due to health or contact reasons, resulting in a final sample of 257 participants who completed both A1 and A2. The risk and control groups did not significantly differ in terms of age, sex, relationship status, or employment status ($p > .05$), but differed significantly with regard to living situation, highest level of education, job category, income class, satisfaction with financial situation, and satisfaction with socio-economic status ($p < .05$) (see Table 1 for sample characteristics and group comparisons). In terms of satisfaction with SES, the risk group indicated significantly lower satisfaction with SES ($M = 4.9$, $SD = 2.21$, $n = 132$) compared to the control group ($M = 6.16$, $SD = 1.80$, $n = 125$), $p < .001$. Regarding basic health indicators, the average waist-to-hip ratio was significantly higher in the risk group compared to the

Table 1
Sample characteristics.

Sample Characteristics	Total Sample ($N = 257$)			Risk Group ($n = 132$)			Control Group ($n = 125$)			Risk Group vs. Control Group
	Total	Male	Female	Total	Male	Female	Total	Male	Female	*p*
Demographic information:										
Age (years; age range = 49–95 years): *M*(*SD*)	70.72 (11.08)	71.01 (10.02)	70.37 (12.22)	70.83 (12.30)	71.17 (11.88)	70.35 (12.95)	70.6 (9.68)	70.82 (7.10)	70.39 (11.67)	$t(246.86) = 0.163$, $p = .869$
Sex (%)		53.69	46.30		58.33	41.66		48.80	51.20	$X^2 = 1.979$. $p = .159$
Living situation: (%)										$\mathbf{X^2 = 12.795}$**
Alone	41.24	30.43	53.78	43.93	36.36	54.54	38.40	22.95	53.12	
With partner	45.91	60.86	28.57	39.39	49.35	25.45	52.80	75.40	31.25	
With other - family	5.44	36.23	7.56	7.57	6.49	9.09	3.20	0	6.25	
With other - not family	1.94	21.73	1.68	3.03	3.89	1.81	8	0	1.56	
Care home	1.94	0.72	3.36	3.78	1.29	7.27	0	0	0	
Other	3.50	2.17	5.04	2.27	2.59	1.81	4.80	1.63	7.81	
Relationship status: (%)										$X^2 = 7.450$. $p = .189$
Single	12.45	10.86	14.28	12.87	14.28	10.90	12	6.55	17.18	
In a relationship	11.28	11.59	10.92	12.12	12.98	10.90	10.40	9.83	10.93	
Married	41.24	57.24	22.68	35.60	48.05	18.18	47.20	68.85	26.56	
Separated	1.94	3.62	0	30.30	5.19	0	0.80	1.63	0	
Divorced	20.23	11.59	30.25	25.00	15.58	38.18	15.20	6.55	23.43	
Widowed	12.84	50.72	21.84	11.36	3.89	21.81	14.40	6.55	21.87	
Waist-to-hip ratio (range = 0.51–1.32): *M*(*SD*)	0.92 (0.10)	0.98 (0.09)	0.86 (0.07)	0.94 (0.09)	0.98 (0.08)	0.88 (0.07)	0.91 (0.10)	0.97 (0.09)	0.85 (0.07)	$\mathbf{t(250.23) = 3.011}$**
Education:										
Highest level of education: (%)										$\mathbf{X^2 = 52.43}$***
No education	2.33	2.17	2.52	4.54	3.89	5.45	0	0	0	
Primary school	3.89	2.89	5.04	6.81	5.19	9.09	0.9	0	1.56	
Upper secondary school	10.50	10.14	10.92	16.66	16.88	16.36	4.0	1.63	6.25	
High school	2.33	0.72	4.20	1.51	0	3.63	3.2	1.63	4.68	
Vocational job training	39.29	36.95	42.01	43.93	45.45	41.81	34.4	26.22	42.18	
Higher professional training	14.78	17.39	11.76	13.63	18.18	7.27	16.0	16.39	15.62	
University	21.78	26.08	16.80	6.81	6.49	7.27	37.6	50.18	25	
Other	5.05	3.62	6.722	6.06	3.89	9.09	4.0	3.27	4.68	
Job category: (%)										$\mathbf{X^2 = 40.123}$***
Agricultural	2.33	2.89	1.68	3.78	3.89	3.63	0.8	1.63	0	
Production occupations in industry and commerce	6.22	7.97	4.20	9.84	12.98	5.45	2.4	1.63	3.12	
Technical and informatics	10.11	18.84	0	6.81	11.68	0	13.6	27.86	0	
Construction, finishing, and mining	6.61	12.31	0	9.09	15.58	0	4.0	8.19	0	
Trade and transport	6.22	6.52	5.88	8.33	9.09	7.27	4.0	3.27	4.68	
Hotel, restaurant, and personal service	12.45	5.07	21.00	18.93	7.79	34.54	5.6	1.63	9.37	
Management, administration, banking, Insurance, and legal services	16.34	18.11	14.28	15.90	16.88	14.54	16.8	19.67	14.06	
Health, teaching and cultural occupation, researchers	25.29	15.94	36.13	14.39	9.09	21.81	36.8	24.59	48.43	
Non-classifiable information	10.89	9.42	12.60	7.57	7.79	7.27	14.4	11.47	17.18	
Socio-economic Status:										
Income class: (%)										$\mathbf{X^2 = 18.783}$***
< 2001 Swiss Francs	15.17	13.04	17.64	21.96	16.88	29.09	8.0	8.19	7.81	
2001 – 3330 Swiss Francs	19.84	14.49	26.05	22.72	19.48	27.27	16.8	8.19	25.00	
3301 – 4670 Swiss Francs	16.73	16.66	16.80	18.18	14.28	23.63	15.2	19.67	10.93	
> 4670 Swiss Francs	46.69	53.62	38.65	34.84	45.45	20.00	59.2	63.93	54.68	
Employment status: (%)										$X^2 = 4.363$, $p = .359$
Employed	21.40	21.73	21.00	20.45	20.77	20.00	22.4	22.95	21.87	
Unemployed	2.72	0.72	5.04	2.27	1.29	3.63	3.2		6.25	
Retired - pension	57.97	61.59	53.78	61.36	62.33	60.	54.4	60.65	48.43	
Voluntary work	11.67	10.86	12.60	8.33	9.09	7.27	15.2	13.11	17.18	
Satisfaction with financial situation: (%)										$\mathbf{X^2 = 30.462}$***
Very dissatisfied	10.89	13.76	7.56	15.90	18.18	12.72	5.6	8.19	3.12	
Dissatisfied	19.06	19.56	18.48	25.75	27.27	23.63	12.0	9.83	14.06	

(*continued on next page*)

Table 1 (*continued*)

Sample Characteristics	Total Sample ($N = 257$)			Risk Group ($n = 132$)			Control Group ($n = 125$)			Risk Group vs. Control Group
	Total	Male	Female	Total	Male	Female	Total	Male	Female	*p*
Satisfied	46.30	43.47	49.57	45.45	40.25	52.72	47.2	47.54	46.87	
Very satisfied	22.95	22.46	23.52	11.36	12.98	9.09	35.2	34.42	35.93	
Satisfaction with socio-economic status: (range 1–10): *M*(*SD*), Median	5.522 (2.1), 6	5.72 (2.21), 6	5.28 (2.03), 5	4.9 (2.21), 5	5.10 (2.36), 5	4.61 (2.16), 5	6.16 (1.80), 6	6.49 (1.84), 7	5.85 (1.73), 6	***t*(245.92) = -4.991****

Note. M = mean, SD = standard deviation, ** $p < .05$, *** $p < .001$.

control group ($p < .05$). For smoking status, the groups differed significantly regarding their current and lifetime smoking status ($p < .001$). Concerning current smoking status, 69.7 % of the risk group and 91.2 % of the control group reported no current smoking behavior. Similarly, only 36.3 % of the risk group and 51.2 % of the control group indicated no lifetime smoking history.

In relation to CSMP, the risk group ($n = 132$) were on average 4.7 years old, with a range between 0–19 years ($SD = 4.86$; *range* 0–19 years), during initial CSMP experience and spent an average of 11.7 years ($SD = 6.16$; *range* 0–25 years) within the CSMP context. The majority of the sample (77.3 %) were placed in a foster home or family, of which 47.0 % (36.4 % of the total sample) lived and worked on a farm (i.e., Verdingkinder). Other CSMP included compulsory adoption or taking children away from their families (8 %), placement in a closed institution/penal system (5.3 %), or psychiatric placement (3 %). Former Verdingkinder worked an average of eight hours per day ($SD = 5.01$; *range* = 0−20 hours), with 77.9 % working seven days a week. The majority (69.7 %) reported the explanation or rationale for their CSMP, such as maternal alcohol dependency, arbitrariness of public authorities, or parental financial problems, unemployment, or divorce. However, 30.3 % did not know the reason for their CSMP. Regarding the time during CSMP, on a

Table 2
Group differences in medical treatments and physical illnesses.

Predictor	*β0*(SE)	*β*(SE)	*p*	OR AOR	OR [95 % CI]AOR [95 % CI]	Hosmer Lemeshow R^2 Cox and Snell R^2 Nagelkerke R^2
General practitioner	−0.88 (1.86)	0.05 (0.54)	.921	0.89 1.06	[0.31, 2.53] [0.36, 3.10]	0.068, 0.031, 0.084
Medical treatment	**−1.03 (0.89)**	**0.67 (0.26)**	**	**1.92** **1.97**	**[1.15, 3.22]** **[1.17, 3.31]**	**0.025, 0.033, 0.045**
Hospitalization	−0.33 (1.26)	0.52 (0.38)	.176	1.69 1.68	[0.8, 3.56] [0.79, 3.59]	0.027, 0.020, 0.038
Operation	−0.08 (1.31)	−0.13 (0.40)	.732	0.87 0.87	[0.4, 1.92] [0.39, 1.93]	0.022, 0.015, 0.030
Head injury	−0.04 (0.91)	0.20 (0.27)	.461	1.26 1.22	[0.73, 2.15] [0.71, 2.10]	0.008, 0.010, 0.015
Diabetes	**−2.85 (1.29)**	**1.89 (0.50)**	***	**7.04** **6.68**	**[2.63, 18.87]** **[2.47, 18.03]**	**0.137, 0.103, 0.188**
Heart problems	**−4.37 (0.83)**	**0.83 (0.28)**	**	**2.37** **2.32**	**[1.38, 4.05]** **[1.33, 4.03]**	**0.084, 0.102, 0.141**
Epilepsy	−0.25 (3.13)	1.10 (1.14)	.331	4 3.03	[0.44, 36.3] [0.32, 28.74]	0.190, 0.036, 0.205
Cancer	−1.99 (1.14)	−0.32 (0.34)	.341	0.69 0.72	[0.35, 1.34] [0.37, 1.41]	0.016, 0.014, 0.024
Thyroid problems	−4.87 (1.39)	0.02 (0.41)	.948	0.9 1.03	[0.42, 1.95] [0.46, 2.30]	0.097, 0.067, 0.131
Hormonal problems	2.02 (2.14)	−0.78 (0.65)	.231	0.47 0.46	[0.14,1.61] [0.13, 1.65]	0.140, 0.052, 0.164
Asthma	−3.60 (1.18)	0.07 (0.34)	.832	1.09 1.08	[0.56, 2.12] [0.55, 2.11]	0.014, 0.012, 0.020
Respiratory problems	−2.06 (1.17)	0.13 (0.35)	.702	1.17 1.14	[0.59, 2.31] [0.57, 2.27]	0.003, 0.003, 0.005
Migraine	−1.42 (1.02)	−0.19 (0.31)	.532	0.74 0.82	[0.4, 1.34] [0.44, 1.52]	0.065, 0.066, 0.102
Stroke	**−4.77 (1.83)**	**1.38 (0.66)**	**	**4.21** **4.00**	**[1.16, 15.3]** **[1.09, 14.63]**	**0.062, 0.028, 0.077**
Gastrointestinal problems	−0.77 (0.87)	0.08)0.26)	.735	1.07 1.09	[0.64, 1.79] [0.65, 1.84]	0.003, 0.003, 0.005
High/low e blood pressure	−1.71 (0.86)	0.41 (0.25)	.108	1.49 1.51	[0.90, 2.45] [0.91, 2.51]	0.019, 0.026, 0.034
Allergy	−0.36 (0.87)	0.17 (0.26)	.511	1.1 1.19	[0.66, 1.85] [0.71, 2.02]	0.023, 0.030, 0.041

Note. SE = standard error, β = unstandardized beta, OR = odds ratio, AOR = adjusted odds ratio, CI = confidence interval, ** $p < .05$, *** $p < .001$. All regressions included age and gender as covariates.

scale from 1 to 10, with 1 indicating the time as "very negative" and 10 as "very positive", the mean rating was 3.60 (*SD* = 2.05; *range* = 1–8). Using the same scale with regard to the consequences of CSMP on their life trajectory, the mean was 3.68 (*SD* = 2.76; *range* = 1–10).

3.2. Group differences in physical health-related information

As the robust and parametric ANCOVAs showed the same results to be significant, the following results focus on the outcomes of the parametric ANCOVA.

3.2.1. Group differences in medical treatments and physical illnesses

Binary logistic regression analyses indicated that group was a significant predictor for current medical treatment ($\beta = 0.67$, $p < .05$), diabetes ($\beta = 1.89$, $p < .001$), cardio-vascular problems ($\beta = 0.83$, $p < .05$), and stroke ($\beta = 1.38$, $p < .05$) (see Table 2). The risk group was 1.97 times more likely to be receiving medical treatment, and to have experienced the following physical illnesses: 6.68 times more likely for diabetes, 2.32 times more likely for cardio-vascular problems, and 4 times more likely for stroke.

3.2.2. Group differences in physical and mental health

Group differences regarding physical and mental health are reported in Table 3. ANCOVA revealed significant group differences for all SF-36 subscales, as well as the physical and mental component summary scores. The effect sizes (η^2) ranged from 0.06 to 0.19, indicating medium to large effect sizes (Cohen, 1988). The adjusted means suggest that the risk group showed lower health-related outcomes compared to the control group on all eight subscales and the two component scores. The greatest mean difference (*MD*) was observed for the subscale 'role limitations due to physical health' (*MD* = 27.24), followed by 'role limitations due to emotional problems' (*MD* = 24.96), and 'pain' (*MD* = 24.10).

Table 3
Group differences in health symptoms, stress load and subjective well-being.

Dependent variable					*AM (ASD)* [95 % CI]	
	df	*F*	*p*	η^2	Risk Group	Control Group
Health symptoms (SF-36)						
Physical functioning	1, 253	42.01	***	0.15	64.10 (2.12) [59.90, 68.29]	83.92(2.15) [79.68, 88.16]
Physical role functioning	1, 253	29.68	***	0.11	51.08 (3.50) [44.17, 57.98]	78.32 (3.54) [71.33, 85.31]
Emotional role functioning	1, 253	10.97	***	0.11	61.10 (3.19) [54.81, 67.40]	86.06 (3.23) [79.69, 92.43]
Vitality	1, 253	14.44	***	0.09	52.76 (1.77) [49.27, 56.25]	65.34 (1.79) [61.81, 68.88]
Psychological well-being	1, 253	24.72	***	0.06	68.60 (1.55) [65.53, 71.67]	77.28 (1.57) [74.17, 80.91]
Social role functioning	1, 253	18.32	***	0.06	72.89 (2.20) [68.55, 77.22]	85.52 (2.22) [81.13, 89.91]
Bodily pain	1, 253	48.29	***	0.19	52.57 (2.22) [48.18, 56.97]	76.67 (2.25) [72.22, 81.91]
General health perceptions	1, 253	19.31	***	0.07	56.10 (0.91) [52.57, 59.62]	67.30 (1.80) [63.74, 70.86]
Physical component score	1, 253	50.30	***	0.17	45.63 (0.91) [43.84, 47.44]	54.92 (0.92) [53.10, 56.74]
Mental component score	1, 253	18.07	***	0.07	43.19 (1.09) [41.03, 45.35]	49.83 (1.10) [47.65, 52.01]
Stress load (SCI)						
Stress due to uncertainty	1, 253	17.88	***	0.08	16.35 (0.65) [15.06, 17,65]	12.39 (0.66) [11.09, 13.70]
Stress due to overload	1, 253	15.05	***	0.06	14.80 (0.53) [13.74, 15.85]	11.83 (0.54) [10.76, 12.90]
Stress due to loss and actual negative events	1, 253	19.90	***	0.07	11.95 (0.46) [11.03, 12.87]	8.98 (0.47) [8.06, 9.91]
Total stress	1, 253	22.36	***	0.83	42.51 (1.38) [39.79, 45.23]	33.19 (1.39) [30.44, 35.95]
Physical and psychological stress symptoms	1, 253	38.32	***	0.14	24.64 (0.52) [23.61, 25.67]	19.85 (0.53) [18.79, 20.91]
Well-being (SWLS)						
Satisfaction with life	1, 253	22.97	****	0.09	20.94 (0.59) [19.76, 22.12]	25.04 (0.60) [23.84, 26.23]

Note. *F* = F-value, η^2 = partial eta squared, AM = adjusted means, ASD = adjusted standard deviation, CI = confidence interval, SCI = Stress and Coping Inventory, SF-36 = Short-Form Health Survey Version 2, SWLS = Satisfaction with Life Scale, ** $p < .05$, *** $p < .001$. Age and gender are included as covariates.

3.2.3. Group differences in stress load

Significant group differences were found for all stress load subscales of the SCI and for 'physical and psychological stress symptoms'. The risk group showed higher scores on all subscales compared to the control group. Total stress also differed significantly between the two groups, with a mean difference of 9.32.

3.2.4. Group differences in well-being

Regarding subjective well-being, the ANCOVA revealed a significant group difference with the risk group showing lower subjective well-being compared to the control group.

3.3. Mediation analyses

Mediation analyses were conducted to investigate whether socio-economic factors (i.e., education, income class, satisfaction with financial situation, and SES) mediated the significant relationships identified above between the factor group and physical and mental health, controlling for age and gender.

3.3.1. Education as mediator

Regarding physical health, a significant indirect effect was observed for the relationship between group and current medical treatment (see all mediation analyses for education in the Supplementary Material, Table 4). The association was completely mediated by education. Education also significantly mediated the relationship between group and the physical component score of the SF-36, and subjective well-being. Regarding stress load, education served as a significant mediator for physical and psychological stress symptoms Fig. 1 illustrates an example of the mediation models.

3.3.2. Income class as mediator

Income class acted as a significant mediator for the relationship between group and the SF-36 subscales: physical role functioning, vitality, psychological well-being, social role functioning, bodily pain, general health perceptions, and the physical component score (see all mediation analyses for income class in the Supplementary Material, Table 5). Regarding stress load, significant indirect effects were observed for stress due to uncertainty, stress due to overload, and total stress. Significant indirect effects were also found for subjective well-being.

3.3.3. Satisfaction with financial situation

Significant indirect effects were found for all eight SF-36 subscales and the physical and mental health component scores, as well as for subjective well-being (see all mediation analyses for satisfaction with financial situation in the Supplementary Material, Table 6). Regarding stress load, satisfaction with financial situation significantly mediated the relationships between group and stress due to insecurity stress due to overload, total stress, and physical and psychological stress symptoms. A complete mediation was observed for the association between group and stress due to overload. Satisfaction with socio-economic status

Satisfaction with SES acted as a significant mediator for the relationships between group and all SF-36 subscales (except physical functioning), and also for the physical and mental health component scores (see all mediation analyses for satisfaction with socio-economic status in the Supplementary Material, Table 7). A significant indirect effect was also found for subjective well-being. Regarding stress load, significant indirect effects were shown for all stress subscales. Furthermore, satisfaction with socio-economic status completely mediated the relationships between group and the psychological well-being subscale of the SF-36, as well as the stress due to overload subscale of the SCI.

4. Discussion

The current study aimed to assess the (very) long-term correlates of compulsory social measures and placements in childhood and/or adolescence on the physical health and subjective well-being of Swiss individuals in later life. Particular focus was placed on the mediating influence of socio-economic factors, i.e., education, income class, and satisfaction with financial situation and SES. Results showed that the risk group (i.e., individuals affected by CSMP) were more often in medical treatment, reported more physical illnesses

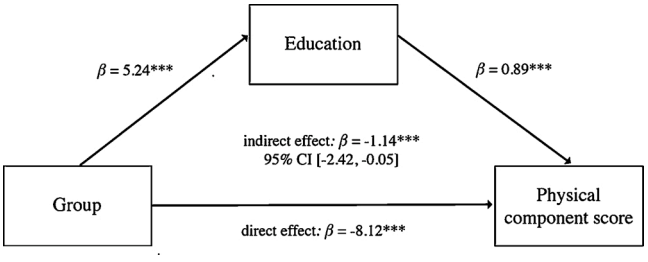

Fig. 1. Mediation model of the relationship between group and the physical component scale (SF-36), significantly mediated by education. *** $p < .001$.

(diabetes, cardio-vascular problems, and stroke), had more vascular risk factors (i.e., higher waist-to-hip ratio, smoking), and generally experienced more health symptoms (e.g., poorer physical functioning, role limitations due to physical health, emotional problems, and more pain). CSMP affected individuals also reported a higher stress load, more physical and psychological stress symptoms, and lower subjective well-being. With respect to socio-economic factors, the risk group had significantly lower education levels, belonged to a lower income class, and were less satisfied with their financial situation and SES, compared to non-affected, age-matched controls. Mediation analyses revealed that these socio-economic factors acted as relevant mediators for the significant health and stress disparities between the two groups.

4.1. Health, well-being, and stress in individuals formerly affected by child welfare measures

The finding of worse health and well-being in individuals formerly affected by CSMP is in line with previous research on younger survivors of child welfare practices, which found frequent physical illnesses and hospitalizations due to physical health issues (Carr, 2009; Carr et al., 2019), lower well-being and higher distress (Sigal et al., 1999), and more stress-related chronic illnesses (Sigal et al., 1999, 2003). These findings are further supported by stress-response theories, which explain the translation of negative experiences early in life into (negative) health and well-being outcomes later in life. For instance, repeated and chronic forms of stress, particularly when exposed early in life, can lead to a hyperactivity and sensitization of the psychobiological (stress-)system, which can in turn increase the vulnerability and sensitivity to future stress experiences (e.g., McLaughlin, Conron, Koenen, & Gilman, 2010). The concept of allostatic load/overload suggests that such prolonged stress experience, and the related ongoing accommodation and activation of allostatic systems, can lead to lasting detrimental health outcomes, i.e., through progressive and accumulative wear and tear (Danese & McEwen, 2012; McEwen & Wingfield, 2003; McEwen, 1998a, 1998b). Another potential explanation for the higher risk for diabetes, cardio-vascular problems, and stroke in the risk group, may be that these health outcomes are indicative of unhealthy behavioral stress coping patterns (e.g., Cohen, Janicki-Deverts, & Miller, 2007), as individuals in the risk group also generally showed higher stress loads, a higher mean waist-to-hip ratio, and were more often smokers.

4.2. Socio-economic factors in survivors of child welfare practices

The risk group also showed significantly lower levels of education, income class, and satisfaction with financial situation and SES, compared to controls. This is consistent with previous research on comparable, but younger samples from other countries who showed lower levels of education and/or lower average income (Lueger-Schuster et al., 2018; Sigal et al., 1999, 2003); as well as psychosocial adjustment issues, such as career development and educational problems (e.g., Carr et al., 2010, 2019). The current study additionally demonstrated that socio-economic factors are relevant in understanding how child welfare practices are connected to poor health and well-being outcomes in later life. These findings are further supported by the perspective of life span theories, particularly the *cumulative advantage/disadvantage theory* (Dannefer, 2003), which proposes pathways of how stress can impact health over time. One important pathway refers to stressors associated with a socio-economically disadvantaged status (akin to that of the CSMP affected sample), of which lower education is a crucial factor. Lower education in childhood/adolescence is often associated with future sub-ordinate occupational positions and subsequent lower economic life circumstances, including low income, poorer neighborhoods, and so-called "ambient stressors" (Pearlin et al., 2005, p. 208), which are in themselves health-risk factors. In Switzerland, during large parts of the last century, there was a lack of advanced education provision for minors in care. Teaching these minors to work hard was generally regarded as more relevant for the foster families, as well as for their prospective social position (Leuenberger & Seglias, 2008). Similar motives were found in Canada (see Sigal et al., 2003, 1999), as well as in Ireland, in the case of the industrial and reformatory school system of the last century (e.g., Ferguson, 2007). Furthermore, research has shown that minors who grow up in such welfare contexts often show cognitive delay (Sherr et al., 2017). This may play a role in the low socio-economic trajectories, such as lower education level and subsequent reduced career/income prospects.

4.3. The role of socio-economic factors in the translation of early-life stress, disadvantage, and inequality into poor health in later life

The study findings support and emphasize the importance of socio-economic factors in the translation of early-life stress, disadvantage, and inequality into poor health in later life (Dannefer, 2003; Pearlin et al., 2005). Interestingly, more significant indirect effects were found for *subjective* socio-economic mediators (i.e., satisfaction with financial situation and SES) in comparison to *objective* socio-economic mediators (i.e., education). For instance, satisfaction with financial situation fully explained the relationship between group and stress due to overload. Similarly, satisfaction with SES fully explained the association between group and psychological well-being. The present findings therefore suggest that socio-economic factors, particularly the subjective aspects, can explain differences in health-related outcomes, stress, and well-being between individuals affected by CSMP and non-affected controls.

4.4. Strengths and limitations

This study extends previous findings to include survivors of higher age (mean age of 71 years), and also explored a wider scope of physical health and well-being indicators and medical conditions than previous studies. In particular, a notable addition to the literature was the inclusion of a non-affected, age-matched control group within the same study design, which allowed for a comparison of the health outcomes. In a recent systematic review of child abuse outcomes in response to long-term care, only 28 % of the studies included a control group (Carr et al., 2020). Survivors of state-ordered child welfare practices in the last century often

experienced a vast array of child maltreatment in a time of profoundly different social norms, moral and child care ideologies (e.g., Ferguson, 2007). The inclusion of an age-matched control group in this study was crucial in showing that individuals affected by CSMP did not receive the same opportunities or resources as their contemporaries with respect to socio-economic factors, which may account for the diverse life trajectories and health disparities in old age. Another strength of the current study was that participants could choose the study location, i.e., the university site or their homes. This allowed the authors to meet the differential health and mobility needs of the participants and facilitated the inclusion of individuals for whom it would otherwise not have been possible.

With respect to limitations of the study, the following aspects have to be considered: One limitation is the potential for a selection effect in the sample. Individuals who were most seriously impaired by the difficult circumstances of their upbringing with respect to socio-economic factors (e.g., illiteracy), or health (e.g., premature death due to chronic illnesses or suicide, or current poor health) would not be represented in this study, limiting the generalizability. Further limitations include the lack of an objective health measure (e.g., biological measures), as well as the retrospective, cross-sectional design, which prevents statements on causal inference.

4.5. Relevance of findings

This study identified detrimental long-term health consequences of having been affected by Swiss child welfare practices in the last century. Nevertheless, it should not be concluded that child welfare practices were (or are) harmful in each case. Child welfare practices are an indispensable means for a welfare state in providing vulnerable children and adolescents with a protective environment. If child welfare is carried out in this spirit, with sufficient personnel and financial resources, and with effective controls, then the vulnerable minors in care can receive a real second chance for healthy development.

The current study focuses on the impact of child welfare practices that were implemented 50–70 years ago. Since then, social norms, moral and child care ideologies, as well as child welfare practices, have undergone fundamental changes (e.g., Ellett & Leighninger, 2006). With regard to the latter, such changes started as early as after World War II, with a decline in orphanages in the United States (e.g., Jones, 1993). In the decades that followed, changes included multiple child welfare reforms (e.g., Alaggia, Jenney, Mazzuca, & Redmond, 2007; Chand, 2008), and systematic investigations of child welfare practices and the related policies of the last century (Huonker, 2014). For instance, in Ireland this investigation involved the *Commission to Inquire into Child Abuse* (Ryan, 2009); in Scotland it was the *Scottish Child Abuse Inquiry*; in Austria, the "*Austrian Victims' Protection Commission*"; and, considerably later in Switzerland, the *Independent Expert Commission* (Commission, 2019) and the current *National Research Program (NRP) 76 'Welfare and Coercion – Past, Present, and Future'*. Through such systematic investigations of child welfare practices and policies, survivors can obtain public awareness, validation, and support. In addition, the state and government can also learn from these past failures to better support current recipients of child welfare practices, as well as to further improve future welfare policies and practices.

Such change is still necessary, as today's recipients of child welfare practices continue to face the negative emotional impact of having lost their parents, having been born into an abusive family, or having been severely neglected. This is compounded by the challenges of growing up in substitutive care contexts, with possible placement changes, rejection by a foster parent, or the stigma of being a recipient of foster care (Pecora et al., 2009). In light of these continued major challenges faced by todays' child welfare receipients, our findings are crucial for informing today's practices. For instance, the study findings indicate that education may be an effective avenue for intervention. Improving the provision of and access to proper education for minors in todays' welfare contexts may provide them with the start needed to overcome early-life disadvantage and inequality and facilitate opportunities for improved SES and a healthier life trajectory. Future research should further investigate the potential of these socio-economic factors in prospective, longitudinal studies with minors in current welfare contexts, particularly those with maltreatment experiences or disadvantaged backgrounds. For the current survivors of child welfare practices of the last century, directing intervention or health-related policy recommendations towards those in the lower income classes or with lower SES may be beneficial. This could help these older and potentially more vulnerable members of society, who may be facing significant health and social issues, and who may therefore benefit most from public health services targeting socio-economic factors.

Finally, in addition to the international implications for supporting CSMP affected populations, many of the current survivors of child welfare practices are now reaching older age stages (Burri et al., 2013). The study findings may therefore also be more widely relevant for potentially vulnerable aging populations. With the demographic shift towards population aging, individuals are living longer, although not necessarily healthier lives and there is a vast heterogeneity in health and aging trajectories (World Health Organization, 2015). As such, a major task of todays' society is to identify factors and determinants that are linked to more favorable outcomes, which can enhance our understanding of the vast interindividual differences in health across the life span. In the current study, it was possible to identify differences in several specific socio-economic factors, which have meaningful implications for understanding health disparities in later life. Public health measures that target socio-economic factors could therefore not only support CSPM affected individuals, but also low-SES individuals and older adults in general.

Declaration of Competing Interest

No conflict of interest was reported by the authors.

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Appendix A. Supplementary data

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